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PTO/SB/05 (2/98)

Approved for use through 09/30/2000. OMB 0651-0032

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# UTILITY PATENT APPLICATION TRANSMITTAL

Attorney Docket No. 4585-001

First Inventor or Application Identifier

Daniel C. Notarnicola

Title

DISPENSER

Express Mail Label No.

EL 446933092US

(Only for new nonprovisional applications under 37 CFR § 1.53(b))

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

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  - Statement Regarding Fed sponsored R & D
  - Reference to Microfiche Appendix
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 4]
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8. ☐ Assignment Papers (cover sheet & document(s))
9. ☐ 37 C.F.R. § 3.73(b) Statement ☐ Power of Attorney  
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# DISPENSER

## Background of the Invention

### (1) Field of the Invention

5 The present invention relates generally to a dispensing apparatus and, more particularly, to an apparatus for dispensing paper towels from a continuous roll of towels, which does not require re-adjustment each time a new roll is put in the dispenser.

### (2) Description of the Prior Art

10 Paper towel dispensers are commonly used for storing and dispensing products such as toilet tissue, hand towels, and others. Towels, for example, are often stored as a continuous roll paper sheet perforated at regular intervals to define individual towels and rolled into a cylindrical tube. The towel roll is housed in a container and dispensed by feeding the end of the paper roll through an opening, such as a slot or a nozzle. A user grasps the exposed end of the towel and pulls off a towel-length  
15 section, thereby exposing the end of the next section to be used.

Unfortunately, most prior-art paper towel dispensers have a number of shortcomings. First, the mechanisms used for dispensing the paper are complicated. For example, many mechanisms require the paper towel sheet to be initially fed through a variety of slots, turns, rollers, and passages. Thus, the process of installing  
20 a roll in such dispensers is often time consuming and difficult, as the towel must be manipulated through the numerous bends and turns which are often small and difficult to access. Once threaded, the paper sheet, if pulled too hard by the user, is liable to tear at a point before the sheet exits the dispenser, requiring the paper to be re-threaded.

25 Second, such prior-art dispensers, because they comprise numerous mechanical components, are often more expensive than less complicated dispensers and require additional maintenance to keep them in proper working condition.

In addition, most present towel dispensers accommodate a single size or strength of paper towel unless the dispenser is modified by service personnel. As a  
30 result, variations in the characteristics - such as thickness or strength - of the paper due to different brands, styles, or manufacturing variances produce dispenser problems, such as the paper being too wide or too narrow to be threaded through the dispenser. For example, towels are perforated to help control the size of the towel and

provide an aesthetically pleasing edge when the towel is torn from the roll. Changes in the perforation resistance can result in the dispenser not adequately holding and tearing the roll, thereby causing additional sheets to be inadvertently pulled from the dispenser, which in turn produces wasted towels, frustrated users, and additional paper expense. Conversely, when perforation resistance is less than the dispenser setting, the towels tear from the roll without pulling the next sheet into position. The dispenser must then be opened - often by service personnel rather than the towel user - and the towel re-threaded through the opening. In summary, most current dispensers are unable to accommodate a variety of sizes without requiring timely and troublesome re-adjustments each time a new roll is put in the dispenser.

Thus there remains a need for a new and improved paper towel dispenser in which the paper roll is easily threaded and can be easily and quickly refilled while, at the same time, can automatically handle varying sizes and strengths of paper without requiring re-adjustment each time a new roll of paper towels is loaded into the dispenser.

### **Summary of the Invention**

The present invention is directed to a dispenser for feeding perforated towels from a continuous roll of towels. In the preferred embodiment, the towel roll is formed from paper or other similar materials. The apparatus includes a dispenser body for containing the paper towel roll and an adjustable outlet or nozzle that is attached to the dispenser body for dispensing an end portion of the continuous roll.

The nozzle includes: a base having a centralized opening; a lower blade having a first cutaway portion; and an upper blade that is slidably nested with the lower blade and having a second cutaway portion which aligns with the first cutaway portion to form a unitary opening aligned with the centralized opening of the base. A cam assembly for selectively adjusting the size of the unitary opening is positioned adjacent to one of the upper and lower blades. At least one gear, intermeshing with at least one gear rack positioned on the upper and lower blades, is connected to the base. The gear provides for equal movement of the upper blade and the lower blade while adjusting the size of the unitary opening, thus maintaining the unitary opening in a centered position.

In the preferred embodiment, a removable slide having a locking tab selectively locks the slide to the nozzle and maintains the nozzle opening in a preset position. The cam assembly is positioned adjacent to one of the upper and lower blades in order to selectively adjust the unitary opening and is also attached to the slide. Removing the slide also removes the cam assembly and permits at least one of the blades to open to allow the roll of paper towels to be easily replaced.

To reduce the amount of debris coming into contact with the blades, the dispenser may further include a cover positioned over the blades such that the blades are contained within the base and the slide. The cover may include a downwardly extending funnel to guide the toweling into the unitary opening.

Accordingly, one aspect of the present invention is to provide a dispenser for feeding perforated towels from a continuous roll of towels. The apparatus includes a dispenser body for containing the paper towel roll and an adjustable nozzle for dispensing an end portion of the continuous roll attached to the dispenser body. The nozzle further includes: (i) an upper blade having a first cutaway portion; (ii) a lower blade, slidably nested with the upper blade, having a second cutaway portion which aligns with the first opening to form a unitary opening; and (iii) a cam assembly, positioned adjacent to one of the upper and lower blades, for selectively adjusting the size of the unitary opening.

Another aspect of the present invention is to provide an adjustable nozzle for feeding perforated towels from a continuous roll of towels contained in a dispenser. The apparatus includes: a base having a centralized opening; an upper blade having a first cutaway portion; a lower blade, slidably nested with the upper blade, having a second cutaway portion which aligns with the first cutaway portion to form a unitary opening aligned with the centralized base opening; a cam assembly, positioned adjacent to one of the upper and lower blades for selectively adjusting the size of the unitary opening; and at least one gear connected to the base and intermeshing with at least one gear rack positioned on the upper and lower blades, the gear providing equal movement between the upper blade and the lower blade.

Still another aspect of the present invention is to provide a dispenser for feeding perforated towels from a continuous roll of towels. The apparatus includes: a dispenser body for containing the paper towel roll; an adjustable nozzle attached to the dispenser body for dispensing an end portion of the continuous roll. The nozzle

includes: (i) a base having a centralized opening; (ii) an upper blade having a first cutaway portion; (iii) a lower blade slidably nested with the upper blade, having a second cutaway portion which aligns with the first cutaway portion to form a unitary opening aligned with the centralized base opening; (iv) a cam assembly positioned adjacent to one of the upper and lower blades for selectively adjusting the size of the unitary opening; and (iv) at least one gear connected to the base and intermeshing with at least one gear rack positioned on the upper and lower blades, the gear providing equal movement between the upper blade and the lower blade; and a removable slide having a locking means for selectively locking the slide to the nozzle for maintaining the nozzle opening in a preset position.

These and other aspects of the present invention will become apparent to those skilled in the art after a reading of the following description of the preferred embodiment when considered with the drawings.

#### **Brief Description of the Drawings**

FIGURE 1 is an exploded perspective view illustrating a dispenser nozzle constructed in accordance with the present invention;

FIGURE 2 is a perspective view of a dispenser body including the nozzle shown in Fig. 1;

FIGURE 3 is a side view of the dispenser body shown in Fig. 2;

FIGURE 4 is a cross-sectional, exploded side view of the dispenser nozzle shown in Fig. 1, further illustrating the relationship between the different elements of the mechanism;

FIGURE 5 is a top view of the assembled dispenser nozzle; and

FIGURE 6 is a bottom view of the assembled dispenser nozzle.

#### **Description of the Preferred Embodiments**

In the following description, like reference characters designate like or corresponding parts throughout the several views. Also in the following description, it is to be understood that such terms as “forward,” “rearward,” “left,” “right,” “upwardly,” “downwardly,” and the like are words of convenience and are not to be construed as limiting terms. Additionally, the terms “towel,” “towelings,” “paper

toweling,” “roll,” and the like refer to a continuous roll of towels that have perforations to allow a user to tear individual towels from the roll.

Referring now to the drawings in general and Figure 1 in particular, it will be understood that the illustrations are for the purpose of describing a preferred embodiment of the invention and are not intended to limit the invention thereto. As best seen in Figure 1, a dispenser nozzle, generally designated 10, is shown constructed according to the present invention. The dispenser nozzle 10 includes a cover 19, a slide 20, a cam 16, an upper blade 12, a lower blade 14, a base 17, and gears 32 and 34.

Figures 2 and 3 show the dispenser body 11 including the dispenser nozzle 10 of the present invention. The dispenser body 11 is shown in dotted lines in Figure 2 to better illustrate how the nozzle 10 fits into the base of the dispenser body. The dispenser body 11 is sized to contain a roll of towels such that the end of the roll passes out of the dispenser through the dispenser nozzle 10 for use by a user. The dispenser body 11 protects the roll from the elements - such as dirt and water - and may include hanging mechanism apertures 13 on the back panel for inserting a fastener for attachment to a wall or other surface. In the preferred embodiment, the axis of the roll upon which the toweling is wound is maintained perpendicular to the dispenser nozzle 10, allowing the free end to be pulled and uncoiled through the dispenser nozzle 10. The dispenser body 11 further includes an opening means to allow for the dispenser body to open for refilling additional rolls of paper towels. As shown in Figures 2 and 3, the dispenser body may include a front panel 15 pivotally hinged to a back section 25 to provide access for inserting a toweling roll into the interior of the dispenser body 11.

The dispenser nozzle 10 is connected to the dispenser body 11 and functions to direct the towels out of the dispenser and to a user. The dispenser nozzle 10 is adjustable in order to provide an opening having a range of sizes in order to accommodate various toweling dimensions. Although other positions are feasible, the nozzle is preferably positioned on a lower surface of the dispenser body 10, as illustrated in Figures 2 and 3.

Figure 4 is a cross-sectional side view of the dispenser nozzle 10. A base 17 is positioned on the outer edge of the dispenser nozzle 10, away from the roll of towels. An opening 67 allows the paper roll to exit from the dispenser nozzle 10. A funnel

69 having a mouth 71 may be removably attached to the outer end of the opening 67. In order to better direct the towels toward a user as they exit from the dispenser nozzle 10 through the opening 67, the mouth 71 of the funnel 69 may incline or bias at an angle away from the central axis of the opening 67 and towards the user. In the preferred embodiment, the mouth 71 forms an angle of about 30 degrees as shown in Figure 4. This arrangement has been found to further aid in proper and repeatable dispensing of the towel when compared with a conventional, unangled nozzle.

In the preferred embodiment, gear mounts 64, positioned on opposite sides of the opening 67, extend outward from the upper surface of the base 17 for mounting gears 32 and 34 and provide for rotational attachment of the gears 32 and 34 for controlling the positioning of the upper blade 12 and lower blade 14. Blade stops 66 extend outward from the upper surface of the base 17 on each side of the opening 67 to control the positioning of the upper blade 12 and lower blade 14. Biasing member connector 62 is positioned at one end of the upper surface of the base 17 for attachment of a biasing member 30, such as a spring, to one of the blades. An outer wall 73 extends around the outer edge of the base 17, as illustrated in Figure 1, to contain the elements of the dispenser nozzle 10.

The upper blade 12 and lower blade 14 nest together to control the size of the opening through which the paper toweling extends. Top and bottom views of the nesting relationship of the upper blade 12 and lower blade 14 are shown in Figures 5 and 6, respectively. The lower blade 14 includes a first surface 81 having a substantially rectangular outer edge which fits within the upper blade outer edge 89. A cam contact point 54 protrudes from one outer edge of the lower blade 14, as illustrated in Figures 1 and 4. Gear racks 60 align on opposite outside edges of the lower blade 14 and include teeth that intermesh with gears 32 and 34. A second lower surface 82 extends substantially parallel to and below the first surface 81 and connects to the upper surface via braces 84, which extend from edges of the first surface 81 adjacent to the gear racks 60. A cutaway portion 56 is located on an edge of the lower surface 82 to form a unitary opening for the paper toweling when the lower blade 14 and the upper blade 12 are nested together.

The upper blade 12 is substantially similar to the lower blade 14. The upper blade 12 includes a first surface 91 having a substantially rectangular shape with an outer edge 89 extending outward along three edges. A biasing member attachment



post 26 is positioned on outer edges. Gear racks 24 are positioned on the underside of the first surface 91 adjacent to the outer edge 89. A second lower surface 92, parallel to and below the first surface 91, is connected to the first surface via braces 85, as illustrated in Figure 1. An cutaway portion 22 is located on an edge of the second surface 92 to align with the lower blade opening 56 to form a unitary opening for the paper toweling when the lower blade 14 and upper blade 12 are nested together.

The nesting relationship between the upper blade 12 and the lower blade 14 is necessary to provide a unitary opening of adjustable width that remains centered with respect to the base unit. The upper blade 12 and lower blade 14 nest together to form an adjustable blade unit that fits within the outer wall 73 of the base 17 and extends downward through the opening 67 in the base 17. The lower blade 14 fits within the outer edge 89 of upper blade 12 to allow the nesting relationship. The lower blade gear racks 60 and upper blade gear racks 24 are aligned when the blades are nested to fit around the gears 32 and 34, which are mounted on the gear mounts 64 of the base 17. The spacing of the teeth in each of the gear racks 60 and 24 are the same in order to provide for equal movement of the lower and upper blades relative to each other. Nesting of the blades aligns the lower blade cutaway portion 56 and the upper blade cutaway portion 22 to form a unitary opening through which the towel may pass. The relative positions of upper blade 12 and lower blade 14 can be adjusted to control the size of the unitary opening in order to provide for various dimensions and sizes of towels. The size of the unitary opening is maximized when the outside edges of the upper blade 12 and lower blade 14 contact the blade stops 66 of the base 17. One of ordinary skill in the art will understand that features of the lower blade and upper blade are not interchangeable.

The cam 16 provides for adjustment of the nested blades to control the size of the opening through which the toweling passes. The cam 16 includes a key post 36, which rotationally mounts into an opening 46 located in the slide 20. In a central region of the cam 16, an indexing flat 42 extends outward from the key post 36 and has an increasing radius. By way of example, at point 37, the radius is at its smallest length. Moving around the indexing flat 42 in a counter-clockwise rotation as viewed in Figure 1, the radius gradually increases to a maximum at point 39. A ratchet detent slot 40 is positioned on the indexing flat 42. A pin 48 extending from the bottom surface of slide 20 mounts within the ratchet slot 40 to control the amount of rotation

of the cam 16. The pin 48 detents into the ratchet detent slot 40 to form friction points, thereby providing a ratcheting effect on the pin 48 on slide 20.

When the cam 16 is mounted, the indexing flat 42 contacts the cam contact point 54 of the lower blade. A cam adjustment aperture 93 positioned in the base 17 provides access to the cam 16 to allow a user to rotate the cam 16 and adjust the size of the unitary opening. The lower cam edge may be accessed through the cam adjustment aperture 93. The lower cam edge may include a slot for receiving a screwdriver head or other tool to assist in the adjustment. As the cam 16 is rotated, the indexing flat 42 controls the size of the unitary opening formed by the upper blade 12 and lower blade 14.

A biasing member 30 is mounted between the spring attachment 26 of the upper blade 12 and biasing member connector 62 of the base 17 to bias the blades outward to maintain contact with the cam 16. As the cam 16 is rotated, the biasing member 30 causes the cam contact point 54 to maintain contact with indexing flat 42.

The slide 20 includes an edge 96 which mounts within the base outer wall 73. A disengage lever 50 is positioned at one end of the slot and includes a locking tab 52 which mounts into a receiver 72 positioned on the cover 19. The disengage lever 50 is pliable to allow a user to disengage the locking tab 52 and move the slide 20 and cam 16 relative to the nozzle 10. The paper towel extends through a slot 44 positioned within the slide. The slot 44 is sized to allow the slide 20 and cam 16 to be moved away from the nozzle without the entire slide being removed from the nozzle. In the preferred embodiment, the slot 44 is sized to allow the slide 20 to be pulled away from the nozzle a distance to provide for the maximum sizing of the unitary opening without completely removing the slide 20 from the nozzle.

The cover 19 is positioned on the outer edge of the slide 20 and fits within the outer wall 73 of the base 17. The cover 19 functions to keep debris, such as dust resulting from the tearing of the paper towels, from entering the dispenser nozzle 10 from the dispenser body 11 and potentially preventing the cam 16, upper blade 12, and lower blade 14 from functioning. A locking tab receiver 72 receives the slide-locking tab 52 to connect the cover 19 and slide 20. An opening, preferably having a funnel 70, allows the toweling to pass from the dispenser body 11 through the dispenser nozzle 10 and also protects the nozzle elements from debris. The funnel 70 nests inside nested upper blade 12 and lower blade 14 and extends below the

respective planes of the first surface 91 of the upper blade 12 and first surface 81 of the lower blade 14.

In operation, the elements of the nozzle are fitted together to provide for dispensing the toweling to users. The cam contact point 54 of the lower blade is positioned against the cam indexing flat 42 to control the size of the unitary opening formed between the openings 56 and 22 of the upper blade 12 and lower blade 14, respectively. When the roll is finished, the slide 20 and attached cam 16 are slidingly removed a distance away from the lower funnel opening to allow the unitary opening to enlarge. Removal of the cam 16 from the cam contact point 54 results in the upper blade 12 and lower blade 14 being moved equally apart by the force of the biasing member 30 and in the unitary opening formed by the blades enlarging. The upper blade 12 and lower blade 14 are equally geared such that each move an equal distance. The upper blade 12 and lower blade 14 will continue to move apart until they individually contact blade stops 66 located on the base 17. At this point, the slide 20 and cam 16 are pulled away from the nozzle a distance to allow the blades to open to the maximum extent. The cam 16 has not rotated and is still in the same position as when contacting the cam contact point 54 of the lower blade 12.

By maximizing the size of the unitary opening, insertion of a new roll into the dispenser body 11 and feeding a roll end through the dispenser nozzle 10 is greatly simplified. After the roll end has been threaded through the dispenser nozzle 10, the user then pushes the slide 20 and cam 16 back to the original position within the dispenser nozzle 10. As the cam 16 is being moved inward, the cam indexing flat 42 contacts the cam contact point 54 of the lower blade 14. The force of the biasing member 30 is overcome by the force of the user, resulting in the blades repositioning to the same unitary opening size as before the insertion of the new roll. Once in position, the slide disengage lever 50 reengages with the cover locking tab receiver 72 to maintain the blades in the desired position. If necessary, the cam 16 can be adjusted by inserting a tool through the base cam adjust aperture 93 located in the base 17.

Certain modifications and improvements will occur to those skilled in the art upon a reading of the foregoing description. By way of example, means for protecting the nozzle elements from debris originating from outside the dispenser 11 may be affixed to or incorporated into the base 17. Such means may include a flat

annular disk, rubber boot, or a downwardly extending funnel into which the nested blades extend. It should be understood that all such modifications and improvements have been deleted herein for the sake of conciseness and readability but are properly within the scope of the following claims.

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We Claim:

1. A dispenser for feeding perforated towels from a continuous roll of towels, said dispenser comprising:

- 5 (a) a dispenser body for containing said continuous roll; and  
(b) an adjustable nozzle attached to said dispenser body for dispensing an end portion of said continuous roll, said nozzle including: (i) an upper blade having a first cutaway portion; (ii) a lower blade slidably nested with said upper blade, said lower blade having a second cutaway portion which aligns with said  
10 first cutaway portion to form a unitary opening; and (iii) a cam assembly positioned adjacent to one of said upper blade and said lower blade for selectively adjusting the size of said unitary opening.

15 2. The dispenser of Claim 1, further including a removable slide having a locking means for selectively locking said slide to said nozzle for maintaining said unitary opening in a preset position.

20 3. The dispenser of Claim 2, wherein said cam assembly positioned adjacent to one of said upper blade and said lower blade for selectively adjusting the size of said unitary opening is attached to said slide whereby removing said slide removes said cam assembly and allows at least one of said upper blade and said lower blade to open to permit said continuous roll to be more easily replaced.

25 4. The dispenser of Claim 2, wherein said locking means includes a disengage lever having a locking tab that contacts said nozzle for maintaining said slide in a first position.

30 5. The dispenser of Claim 2, further including a central slot positioned within said slide for providing a passageway through which an end of continuous roll extends.

6. The dispenser of Claim 1, further including a cover positioned over said upper blade and said lower blade such that said upper blade and said lower blade are contained within said base and said slide for reducing an amount of debris which may contact said upper blade and said lower blade.

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7. The dispenser of Claim 6, wherein said cover includes a funnel extending downward toward said unitary opening for guiding said toweling into said unitary opening.

10 8. An adjustable nozzle for a dispenser for feeding perforated towels from a continuous roll of towels, said dispenser comprising:

- (a) a base having a centralized opening;
- (b) an upper blade having a first cutaway portion;
- (c) a lower blade slidably nested with said upper blade, said lower blade having a second cutaway portion which aligns with said first cutaway portion to form a unitary opening aligned with said centralized opening;
- (d) a cam assembly blade for selectively adjusting the size of said unitary opening, said cam assembly being positioned adjacent to and contacting one of said upper blade and said lower blade; and
- (e) at least one gear connected to said base, said gear intermeshing with at least one gear rack positioned on each of said upper blade and said lower blade, said gear enabling said upper blade and said lower blade to move equidistantly and in opposite directions from each other.

9. The dispenser of Claim 8, wherein said gear rack is positioned along an edge of each of said lower blade and said upper blade for intermeshing with at least one of said gear mounted on opposing sides of said centralized opening.

10. The dispenser of Claim 9, wherein said base includes two gears mounted on opposing sides of said centralized opening, each of said gears

intermeshing with one of said gear racks positioned on two edges of each of said upper and lower blades.

11. The dispenser of Claim 8, wherein said cam assembly positioned  
5 adjacent to one of said upper blade and lower blade includes a cam mounted on an axial key post, said cam having an indexing flat which contacts one of said upper blade and lower blade, said indexing flat having an increasing radius for adjusting the aperture size of said unitary opening by rotating said cam.

12. The dispenser of Claim 11, further including a biasing member  
10 extending between one of said upper blade and lower blade and said base for maintaining contact between one of said blades and said cam.

13. The dispenser of Claim 12, further including a cam contact point  
15 positioned on one of said upper blade and lower blade for providing a surface for contacting said cam.

14. The dispenser of Claim 13, wherein said biasing member is attached to  
20 said upper blade and said cam contact point is positioned on said lower blade.

15. The dispenser of Claim 8, further including an outer edge extending  
along three edges of said upper blade to provide for said lower blade to adjustably nest within said upper blade.

16. The dispenser of Claim 12, further including blade stops extending  
25 outward from one face of said base for contacting said upper blade and lower blade and controlling a maximum size of said unitary opening.

17. The dispenser of Claim 16, further including an outer wall extending  
30 about said base for containing said upper blade and lower blade within said base.

18. The dispenser of Claim 11, wherein one end of said axial key post  
includes a tool mount for allowing adjustment of said cam.

19. The dispenser of Claim 18, wherein said indexing flat includes a rotation slot for containing a pin for controlling the degree of rotation of said cam.

5 20. A dispenser for feeding perforated towels from a continuous roll of towels, said dispenser comprising:

- (a) a dispenser body for containing said continuous roll;
- (b) an adjustable nozzle attached to said dispenser body for dispensing an end portion of said continuous roll, said nozzle including: (i) a base having a centralized opening; (ii) an upper blade having a first cutaway portion; (iii) a lower blade slidably nested with said upper blade, said lower blade having a second cutaway portion which aligns with said first cutaway portion to form a unitary opening aligned with said base centralized opening; (iv) a cam assembly positioned adjacent to and engaging a contact point of one of said upper and lower blades for selectively adjusting the size of said unitary opening; and (iv) at least one gear connected to said base and intermeshing with at least one gear rack positioned on said upper and lower blades, said gear said gear enabling said upper blade and said lower blade to move equidistantly and in opposite directions from each other; and
- (c) a removable slide having a locking means for selectively locking said slide to said nozzle for maintaining said nozzle opening in a preset position.

21. The dispenser of Claim 20, wherein said cam assembly positioned adjacent to one of said upper and lower blades for selectively adjusting the size of said unitary opening is attached to said slide whereby removing said slide removes said cam assembly and allows at least one of said blades to open to permit said continuous roll to be more easily replaced.



22. The dispenser of Claim 20, wherein said locking means includes a disengage lever having a locking tab that contacts said nozzle for maintaining said slide in said first position.

5 23. The dispenser of Claim 20, further including a central slot positioned within said slide for providing a passageway for an end of said continuous roll to extend.

10 24. The dispenser of Claim 20, further including a cover positioned over said blades such that said blades are contained within said base and said slide for reducing debris which may contact said blades.

15 25. The dispenser of Claim 24, wherein said cover includes a funnel extending downward toward said unitary opening for guiding an end of said continuous roll into said unitary opening.

20 26. The dispenser of Claim 20, wherein said gear rack is positioned along at least one edge of each of said lower and upper blades for intermeshing with said at least one gear mounted on opposing sides of said centralized opening.

25 27. The dispenser of Claim 26, wherein said base includes two gears mounted on opposing sides of said centralized opening, said gears intermeshing with each of said gear racks positioned on two edges of each of said upper and lower blades.

30 28. The dispenser of Claim 20, wherein said cam assembly positioned adjacent to one of said upper and lower blades includes a cam mounted on an axial key post, said cam having an indexing flat which contacts one of said blades, said indexing flat having an increasing radius for adjusting the aperture size of said unitary opening by rotating said cam.

29. The dispenser of Claim 28, further including a biasing member extending between one of said blades and said base for maintaining contact between one of said blades and said cam.

5 30. The dispenser of Claim 29, further including a cam contact point positioned on one of said blades for providing a surface for contacting said cam.

31. The dispenser of Claim 30, wherein said biasing member is attached to said upper blade and said cam contact point is positioned on said lower blade.  
10

32. The dispenser of Claim 20, further including an outer edge downwardly extending along three edges of said upper blade to provide for three edges of said lower blade to adjustably nest within said outer edge of said upper blade.  
15

33. The dispenser of Claim 29, further including blade stops for contacting said blades and controlling the maximum size of said unitary opening, said blade stops extending outward from one face of said base.

20 34. The dispenser of Claim 33, further including an outer wall extending about said base for containing said blades within said base.

35. The dispenser of Claim 28, wherein one end of said axial key post includes a tool mount for allowing adjustment of said cam.  
25

36. The dispenser of Claim 35, wherein said indexing flat includes a rotation slot for containing a pin for controlling the degree of rotation of said cam.

37. The dispenser of Claim 20, further including an exit funnel having an inlet end and an outlet, wherein said inlet end is removably attached to said base such that a passageway from said central opening to said outlet is provided for an end of said continuous roll.  
30

38. The dispenser of Claim 37, wherein said outlet has a first longitudinal axis and said centralized opening has a second axis, and wherein said first axis and said second axis intersect to form an acute angle.

5 39. The dispenser of Claim 38, wherein said acute angle is about 30 degrees.

### **Abstract of the Disclosure**

A dispenser for feeding perforated paper towels from a continuous roll of paper towels. The apparatus includes a dispenser body for containing the towel roll  
5 and an adjustable nozzle attached to the dispenser body for dispensing an end portion of the continuous roll. The nozzle includes a base having a centralized opening; an upper blade having a first cutaway portion; and a lower blade slidably nested with the upper blade, the lower blade having a second cutaway portion which aligns with the first opening to form a unitary opening aligned with the base centralized opening. A  
10 cam assembly is positioned adjacent to one of the upper and lower blades for selectively adjusting the size of the unitary opening. At least one gear is connected to the base and intermeshing with at least one gear rack positioned on the upper and lower blades. The gear provides for equal movement between the upper blade and the lower blade when the opening is adjusted. In the preferred embodiment, a removable  
15 slide having a locking tab selectively locks the slide to the nozzle for maintaining the nozzle opening in a preset position. Also, the cam assembly positioned adjacent to one of the upper and lower blades for selectively adjusting the size of the unitary opening is attached to the slide whereby removing the slide removes the cam assembly and allows at least one of the blades to open to permit the roll of paper  
20 towels to be more easily replaced.

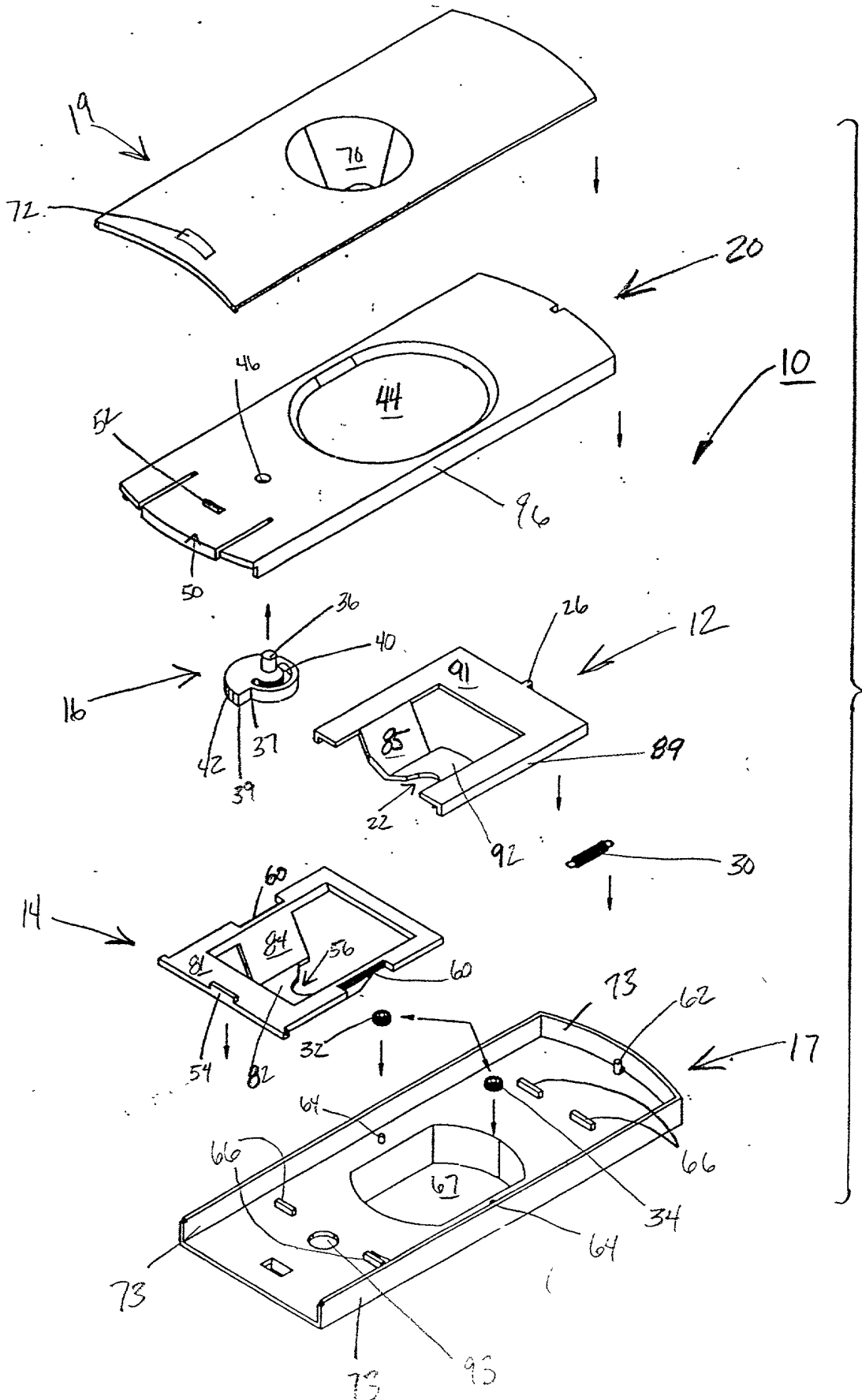


FIG.1

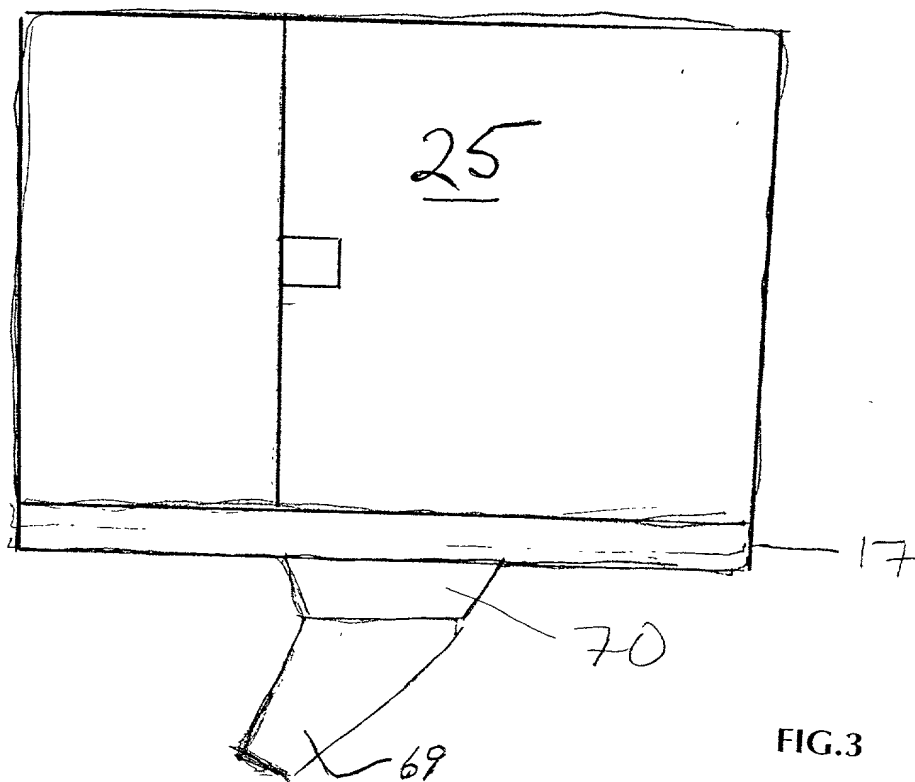
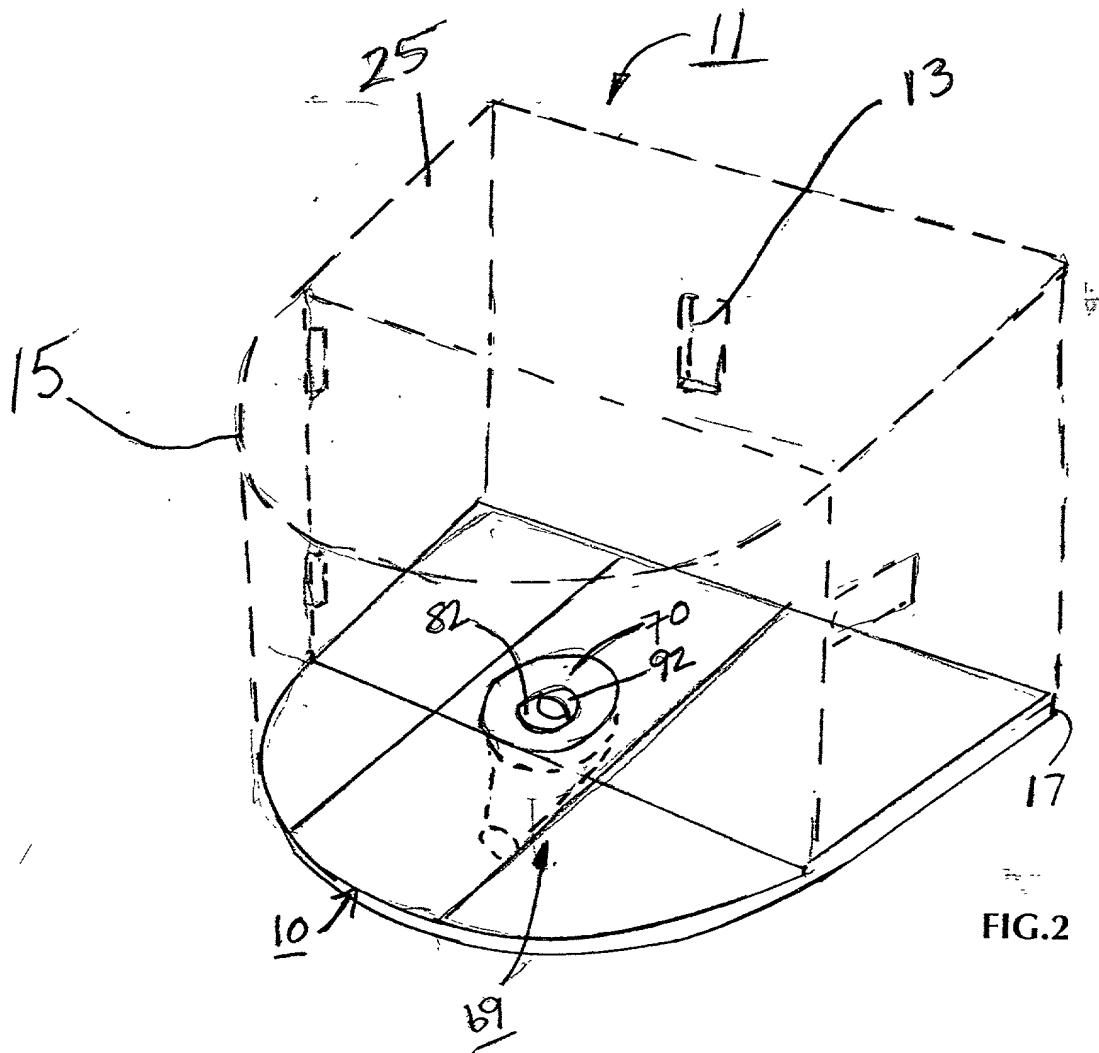


FIG. 4

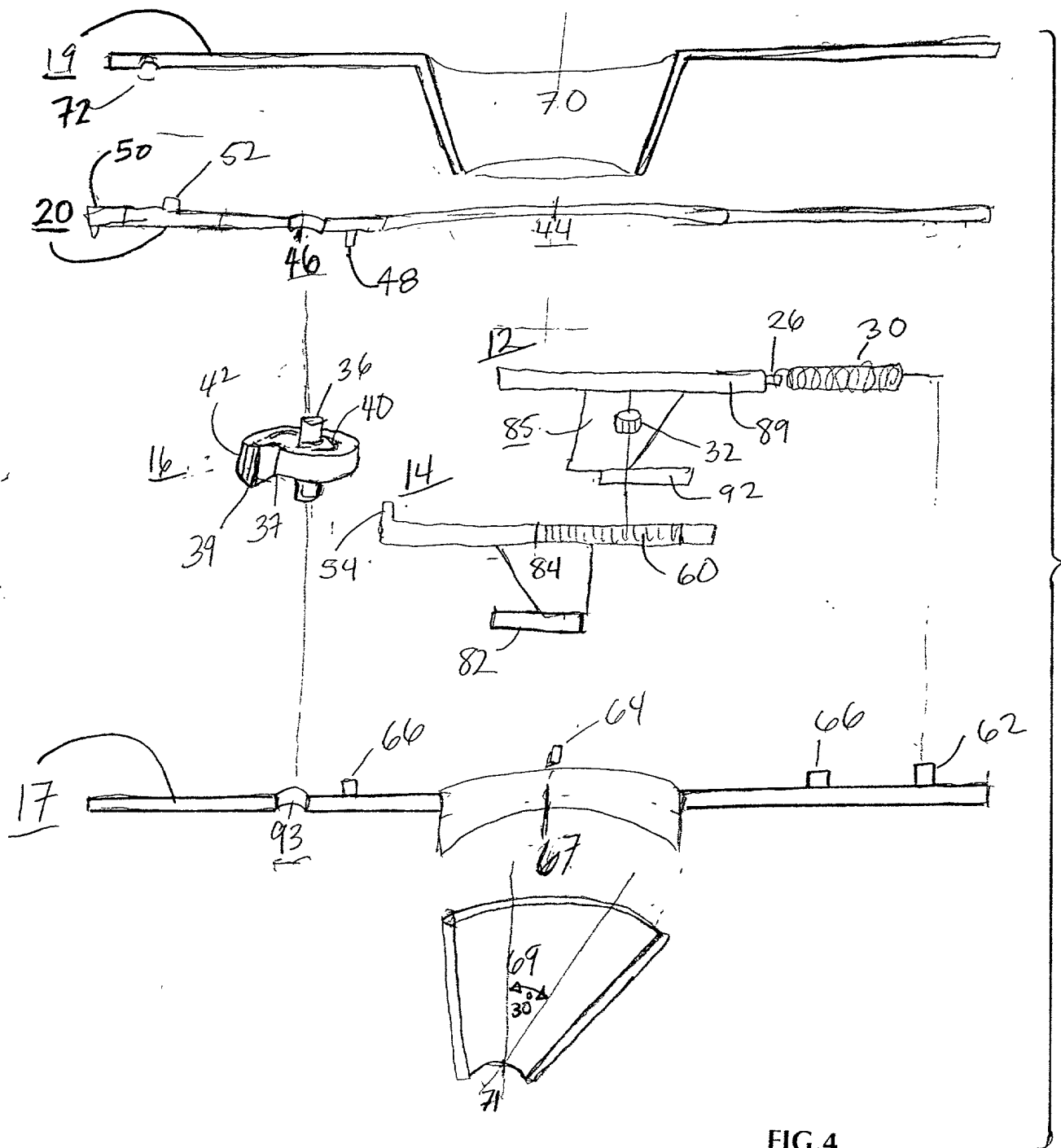


FIG.4

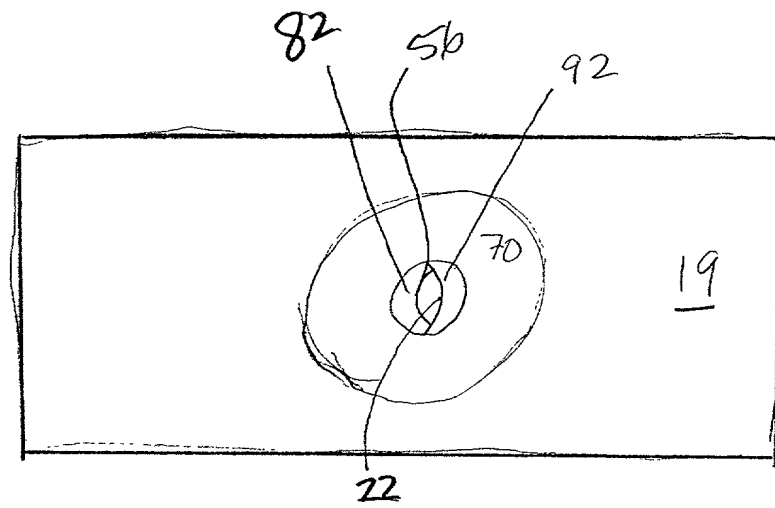


FIG. 5

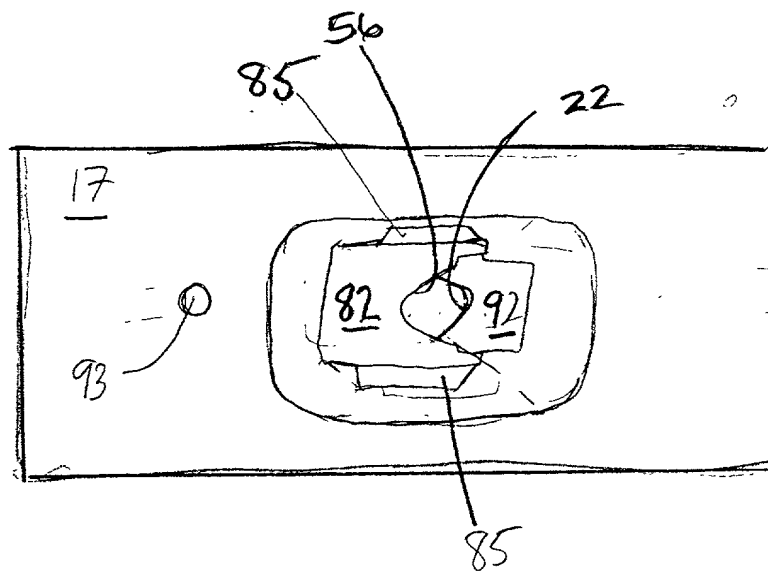


FIG. 6



**RULE 63 (37 C.F.R. 1.63)**  
**DECLARATION FOR PATENT APPLICATION**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled DISPENSER the specification of which (check applicable box(es)):

- ☒ is attached hereto.  
☐ was filed on \_\_\_\_\_ as U.S. Application Serial No. \_\_\_\_\_  
☐ was filed as PCT international application No. PCT/\_\_\_\_\_/\_\_\_\_\_ on \_\_\_\_\_ and (if applicable to U.S. or PCT application) was amended on \_\_\_\_\_

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with 37 C.F.R. 1.56(a). I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, if no priority is claimed, before the filing date of this application:

Prior Foreign Application(s): Application Number	Country	Day/Month/Year Filed
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I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application listed below:

Prior Provisional Application(s): Application Serial No.	Day/Month/Year Filed
---	----------------------

I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56(a) which occurred between the filing date of the prior applications and the national or PCT international filing date of this application:

Prior U.S./PCT Application(s): Application Serial No.	Date/Month/Year Filed	Status: patented, pending, abandoned
--	-----------------------	---

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1) Inventor's Signature _____	Date _____
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Inventor's Name (typed) _____	_____
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Residence (City) _____	State/Foreign Country) _____
Post Office Address _____	Zip Code _____
3) Inventor's Signature _____	Date _____
Inventor's Name (typed) _____	_____
First Middle Initial Family Name	Citizenship
Residence (City) _____	State/Foreign Country) _____
Post Office Address _____	Zip Code _____

FOR ADDITIONAL INVENTORS, check box ☐ and attach sheet with same information and signature and date for each.

Rhodes & Mason (4/98)